Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-46 (canceled)

Claim 47 (currently amended): A system for driving a direct-current (DC) motor under conditions of controlled DC current, from a DC voltage source of a value larger than said motor operating voltage, independently of the operating voltage of said motor, said system comprising:

a pair of nodes for connection of said DC motor, said nodes to be referred herein as the first node and the second node,[[;]] said second node connected to a common electrical terminal of the system through an electrical path with low impedance, including low impedance to DC current,[[;]] said DC motor ~~is~~ being connected between said first node and said second node;

an inductive element to store energy and to act as a current source for said DC motor, said inductive element ~~is~~ being external to said DC motor, and not part of said DC motor main magnetic circuit, said inductive element ~~is~~ being connected to said first node, in series with said DC motor, said inductive element being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of a first switch, the terminal of said inductive element not connected to said first node ~~to be~~ being connected to a third node;

said first switch ~~is~~ being connected to said inductive element at the third node, the terminal of said inductive element remote from said DC motor,[[;]] said first switch ~~used for connected and disconnecting~~for connecting and disconnecting said inductive element to a direct current (DC) voltage source,[[;]] a terminal of said DC voltage source not connected to said first switch, ~~to be~~ being connected to said common electrical terminal of the system; said first switch ~~is~~ being a controlled switch capable of being turned off and on ~~(switch open or closed)~~ by control

signals from a control system,[[;]] said control system ~~operates~~operating based on an error signal and a value of the desired operating current for said DC motor set externally to the system,~~; the object of~~ said control system ~~is to turn~~ turning said first switch off and on ~~(switch open or closed) in order~~ to minimise said error signal and to keep the operating current of said DC motor at said desired value,[[;]] said first switch is a single pole switch;

a second switch connected between said third node and said common electrical terminal of the system, parallel with a combination of said inductive element and said DC motor arranged in series,[[;]] said second switch being controlled so that a current circulating through said inductive element circulates through said second switch if said first switch is turned off ~~(switch open)~~ and disconnects said inductive element from said DC voltage source,[[;]] said second switch ~~is~~ being a single pole switch;

a capacitor arranged for connection in parallel with said DC motor to limit a resulting voltage over said DC motor, said capacitor being capable of operating in a buck converter at a power level required to operate said DC motor and at the frequency of commutation of said first switch, said capacitor ~~is~~ being connected between said first node and a low impedance path to said common electrical terminal of the circuit;

a current sensor for measuring a current through said DC motor,[[;]] the output of said current sensor being connected to said control system of said first switch to generate said error signal for the operation of said control system controlling the operation of said first switch, and

means for controlling operation of said second switch dependent upon the state of the first switch.

Claim 48 (previously presented): The system according to claim 47, wherein the voltage of said DC voltage source is larger than the nominal rated voltage of said DC motor.

Claim 49 (currently amended): A system for driving a direct-current (DC) motor under conditions of controlled DC current, independently of the operating voltage of said motor, said system comprising:

a pair of nodes for connection of said DC motor, said nodes to be referred to

herein as the first node and the second node,[[;]] said second node being connected to a common electrical terminal of the system through an electrical path with low impedance, including low impedance of DC current,[[;]] said DC motor is connected between said first node and said second node;

a capacitor arranged for connection in parallel with said motor to limit a resulting voltage over said motor, one terminal of said capacitor being connected to said first node, the other terminal of said capacitor to be connected through a low impedance to said common terminal of the system, said capacitor being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of a first switch;

an inductive element with one terminal being connected to said common terminal of the system through a low impedance path, the other terminal of said inductive element, referred to herein as the third node, ~~is~~being connected to said first switch,[[;]] said inductive element ~~is~~being used to store energy and to act as a current source for said DC motor, said inductive element being external to said DC motor[[,]] and not part of the said DC motor main magnetic circuit, said inductive element being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of said first switch;

said first switch ~~is~~being connected to said inductive element in the third node, said first switch ~~used~~ for connecting and disconnecting said third node to a DC voltage source,[[;]] a terminal of said DC voltage source not connected to said first switch, ~~to be~~being connected to said common electrical terminal of the system,[[;]] said first switch being a controlled switch capable of being turned off and on ~~(switch open and closed)~~ by control signals from a control system,[[;]] said control system ~~operates~~operating based on an error signal and a value of a desired operating current for said DC motor, set externally to the system~~; the object of~~, said control system ~~is to turn~~for turning said first switch off and on ~~(switch open and closed) in order~~ to minimise said error signal and to keep the operating current of said DC motor at said desired value,[[;]] said first switch ~~is~~ being a single pole switch;

a second switch being connected between said first node and said third node, ~~that is,~~ in series with the parallel combination of said motor and said capacitor, and being connected

to the common node between the first switch and said inductive element,[[;]] said second switch being controlled so that a current circulating through said inductive element circulates through said second switch if the first switch is turned off ~~(switch opened)~~ and disconnects the third node from said DC voltage source,[[;]] said second switch ~~is~~being a single pole switch;

a current sensor for measuring a current through said DC motor,[[;]] the output of said current sensor being connected to said control system of said first switch to generate said error signal for the operation of said control system, controlling the operation of said first switch, and

means for controlling operation of said second switch dependent upon the state of the first switch.

Claim 50 (currently amended): A system for driving a direct-current (DC) motor under conditions of controlled DC current, independently of the operating voltage of said motor, said system comprising:

a pair of nodes for connection of said DC motor, said nodes to be referred to herein as the first node and the second node, said DC motor ~~is~~being connected between said first and said second node;

a capacitor arranged for connection in parallel with said motor, between said first node and said second node, to limit a resulting voltage over said motor, said first node, connected to a terminal of said capacitor and said motor, being also connected to a DC voltage source, said capacitor being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of a first switch,[[;]] the other terminal of said DC voltage source ~~to be~~being connected to a common electrical terminal of the system;

an inductive element with one terminal connected to said first node, a common node of said DC voltage source, said capacitor and said DC motor, the other terminal of said inductive element, referred to herein as the third node and ~~is~~being connected to said first switch,[[;]] said inductive element being used to store energy and to act as a current source for said DC motor, said inductive element being external to said DC motor, and not part of the said

DC motor main magnetic circuit, said inductive element being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of said first switch;

said first switch ~~is~~being connected to said inductive element in the third node, the other terminal of said first switch, not connected to the third node ~~is~~being connected to said common electrical terminal of the system through an electrical path with low impedance, including low impedance to DC current,[[;]] said first switch ~~used~~ for connecting and disconnecting the third node to said common electrical terminal of the system,[[;]] said first switch being a controlled switch capable of being turned off and on ~~(switch open and closed)~~ by control signals from a control system,[[;]] said control system ~~operates~~operating based on an error signal and a value of a desired operating current for said DC motor set externally to the system,[[;]] ~~the object of~~ said control system ~~is to turn~~for turning said first switch off and on ~~(switch open and closed) in order~~ to ~~minimise~~ minimize said error signal and to keep the operating current of said DC motor at said desired value,[[;]] said first switch ~~is~~being a single pole switch;

a second switch being connected between said second and said third node, said second switch being controlled so that a current circulating through said inductive element circulates through said second switch if the first switch is turned off ~~(switch opens)~~ and disconnects the third node from said common electrical terminal of the system,[[;]] said second switch ~~is~~being a single pole switch;

a current sensor for measuring a current through said DC motor,[[;]] the output of said current sensor being connected to said control system of said first switch to generate said error signal for the operation of said control system, controlling the operation of said first switch; and

means for controlling operation of said second switch dependent upon the state of the first switch.

Claim 51 (currently amended): The system according to claim 47, wherein said second switch is a diode connected with appropriate polarity so that current circulating through

said inductive element circulates through said diode and if said first switch is open, disconnecting said inductive element.

Claim 52 (currently amended): The system according to claim 47, wherein said second switch is an electronic switch for synchronous rectification connected with appropriate polarity so that current circulating through said inductive element circulates through said electronic switch and if said first switch is open, disconnecting said inductive element.

Claim 53 (previously presented): The system according to claim 47, wherein said first switch is an electronic switch.

Claim 54 (cancelled)

Claim 55 (previously presented): The system according to claim 47, wherein said inductive element is an inductor, or a winding of a transformer.

Claim 56 (currently amended): The system according to claim 47, wherein a current through the inductive element ~~can be~~is controlled independently from a current through the motor, the balance of electrical charge being accumulated or taken from the capacitor in parallel with the motor.

Claim 57 (previously presented): The system according to claim 47, wherein a current through the inductive element is modulated as a full wave rectified sinusoid synchronous with the AC main voltage so that the power factor of the system, as a load to the AC main is improved.

Claims 58 - 63 (cancelled)

Claim 64 (previously presented): The system according to claim 47, further comprising a DC motor.

Claim 65 (previously presented): The system according to claim 64, wherein said DC motor includes a brush-less DC motor.

Claim 66 (withdrawn): The system according to claim 65, wherein said DC motor includes an electronic commutator for said brush-less DC motor.

Claim 67 (currently amended): The system according to claim 47, ~~wherein said means for measuring said current through the motor includes~~ further comprising means for calculating said current through the motor dependent upon current measured in another part of said system.

Claim 68 (previously presented): The system according to claim 47, wherein a frequency of a pulse width modulated waveform, resulting from operation of said switches, is randomized to facilitate EMI compliance.

Claims 69-83 (canceled)

Claim 84 (previously presented): The system according to claim 56 wherein the current through the motor is calculated from the variation of the voltage across the capacitor in parallel with the motor.

Claim 85 (previously presented): The system according to claim 57, wherein the instant in which the sinusoidal waveform of the AC main crosses zero is sensed to synchronise the modulation performed to the current through the inductive element with the waveform in the AC main.

Claim 86 (previously presented): The system according to claim 47, wherein the voltage over the DC motor is used to estimate the speed of the motor.

Claims 87-92 (canceled)

Claim 93 (new): The system according to claim 47, wherein said first switch and said direct current (DC) voltage source are implemented by an electronic system that connects said inductive element either to a given voltage or to a high impedance for a period of time determined by said control system controlling said first switch, said high impedance being

measured with respect to said common electrical terminal of said system, said given voltage being set externally to said system, said electronic system being connected to said common electrical terminal of the system, said electronic system being controlled by said control system controlling said first switch.

Claim 94 (new) The system according to claim 56, further comprising an electronically driven motor, including a brushless motor, said motor being braked electronically so that a current produced during the braking process further charges said capacitor in parallel with said motor.

Claim 95 (new) The system according to claim 49 wherein said first switch is an electronic switch, and said second switch is a diode connected with appropriate polarity so that current circulating through said inductive element circulates through said diode and if said first switch is open, disconnecting said inductive element.

Claim 96 (new) The system according to claim 49, wherein said inductive element is an inductor, or a winding of a transformer.

Claim 97 (new) The system according to claim 49, wherein a current through the inductive element is controlled independently from a current through the motor, the balance of electrical charge being accumulated or taken from the capacitor in parallel with the motor.

Claim 98 (new) The system according to claim 49, wherein a current through the inductive element is modulated as a full wave rectified sinusoid synchronous with the AC mains voltage so that the power factor of the system, as a load to the AC main is improved.

Claim 99 (new): The system according to claim 49, wherein said first switch and said direct current (DC) voltage source are implemented by an electronic system that connects said inductive element either to a given voltage or to a high impedance for a period of time determined by said control system controlling said first switch, said high impedance being measured with respect to said common electrical terminal of said system, said given voltage

being set externally to said system, said electronic system being connected to said common electrical terminal of the system, said electronic system being controlled by said control system controlling said first switch.

Claim 100 (new) The system according to claim 49, wherein said inductive element is an inductor and said second switch is connected to a terminal of said inductor that is not connected to said third node or to said common electrical terminal of the system.

Claim 101 (new) The system according to claim 97, further comprising an electronically driven motor, including a brushless motor, said motor being braked electronically so that a current produced during the braking process further charges said capacitor in parallel with said motor.

Claim 102 (new): The system according to claim 50, wherein said first switch is an electronic switch, and said second switch is a diode connected with appropriate polarity so that current circulating through said inductive element circulates through said diode and if said first switch is open, disconnecting said inductive element.

Claim 103 (new) The system according to claim 50, wherein said inductive element is an inductor, or a winding of a transformer.

Claim 104 (new): The system according to claim 50, wherein a current through the inductive element is controlled independently from a current through the motor, the balance of electrical charge being accumulated or taken from the capacitor in parallel with the motor.

Claim 105 (new): The system according to claim 50, wherein a current through the inductive element is modulated as a full wave rectified sinusoid synchronous with the AC mains voltage so that the power factor of the system, as a load to the AC main is improved.

Claim 106 (new) The system according to claim 50, wherein said first switch and said direct current (DC) voltage source are implemented by an electronic system that connects said inductive element either to a given voltage or to a high impedance for a period of time being

measured with respect to said common electrical terminal of said system, said given voltage being set externally to said system, said electronic system being connected to said common electrical terminal of the system, said electronic system being controlled by said control system controlling said first switch.

Claim 107 (new) The system according to claim 50, wherein said inductive element is an inductor and said second switch is connected to a terminal of said inductor that is not connected to said third node or to said direct current (DC) voltage source.

Claim 108 (new) The system according to claim 104, further comprising an electronically driven motor, including a brushless motor. Said motor is braked electronically so that a current produced during the braking process further charges said capacitor in parallel with said motor.

Claim 109 (new) A system for driving a direct-current (DC) motor under conditions of controlled DC current, from a DC voltage source of a value larger than said motor operating voltage, independently of the operating voltage of said motor, said system comprising:

a pair of nodes for connection of said DC motor, said nodes referred to as the first node and the second node, said second node being connected to a direct current (DC) voltage source, a terminal of said DC voltage source not connected to said second node being connected to a common electrical terminal of the system through an electrical path with low impedance, including low impedance to DC current, said DC motor being connected between said first node and said second node;

an inductive element to store energy and to act as a current source for said DC motor, said inductive element being external to said DC motor and not part of said DC motor main magnetic circuit, said inductive element being connected to said first node in series with said DC motor, said inductive element being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of a first

switch, the terminal of said inductive element not connected to said first node being connected to a third node;

said first switch being connected to said inductive element at said third node, the terminal of said inductive element remote from said DC motor, said first switch for connecting and disconnecting said inductive element to said common electrical terminal of the system, a terminal of said first switch not connected to said third node being connected to said common electrical terminal of the system, said first switch being a controlled switch capable of being turned off and on by control signals from a control system, said control system operating based on an error signal and a value of the desired operating current for said DC motor set externally to the system, said control system turning said first switch off and on to minimize said error signal and to keep the operating current of said DC motor at said desired value, said first switch being a single pole switch;

a second switch connected between said third node and said second node, parallel with a combination of said inductive element and said DC motor arranged in series, said second switch being controlled so that a current circulating through said inductive element circulates through said second switch if said first switch is turned off and disconnects said inductive element from said common electrical terminal of the system, said second switch being a single pole switch;

a capacitor arranged for connection in parallel with said DC motor to limit a resulting voltage over said DC motor, said capacitor being capable of operating in a buck converter at a power level required to operate said DC motor and at the frequency of commutation of said first switch, said capacitor being connected between said first node and said second node;

a current sensor for measuring a current through said DC motor, the output of said current sensor being connected to said control system of said first switch to generate said error signal for the operation of said control system controlling the operation of said first switch; and

means for controlling operation of said second switch dependent upon the state of the first switch.

Claim 110 (new): The system according to claim 109, wherein said first switch is an electronic switch, and said second switch is a diode connected with appropriate polarity so that current circulating through said inductive element circulates through said diode and if said first switch is open, disconnecting said inductive element.

Claim 111 (new) The system according to claim 109, wherein said inductive element is an inductor, or a winding of a transformer.

Claim 112 (new): The system according to claim 109, wherein a current through the inductive element is controlled independently from a current through the motor, the balance of electrical charge being accumulated or taken from the capacitor in parallel with the motor.

Claim 113 (new): The system according to claim 109, wherein a current through the inductive element is modulated as a full wave rectified sinusoid synchronous with the AC mains voltage so that the power factor of the system, as a load to the AC main is improved.

Claim 114 (new) The system according to claim 109, wherein said first switch and said direct current (DC) voltage source are replaced by an electronic system that connects said inductive element either to a given voltage or to a high impedance for a period of time determined by said control system controlling said first switch in claim 93. Said high impedance is measured with respect to said common electrical terminal of said system. Said given voltage is set externally to said system. Said electronic system is connected to said common electrical terminal of the system. Said electronic system is controlled by said control system controlling said first switch.

Claim 115 (new) The system according to claim 112, further comprising an electronically driven motor, including a brushless motor, said motor being braked electronically

so that a current produced during the braking process further charges said capacitor in parallel with said motor.

Claim 116 (new) A system for driving a direct-current (DC) motor under conditions of controlled DC current, from a DC voltage source of a value smaller than said motor operating voltage, independently of the operating voltage of said motor, said system comprising:

a pair of nodes for connection of said DC motor, said nodes to be referred to herein as the first node and the second node, said DC motor being connected between said first and said second node;

a capacitor arranged for connection in parallel with said motor, between said first node and said second node, to limit a resulting voltage over said motor, said first node being connected to a common electrical terminal of the system through an electrical path with low impedance, including low impedance to DC current, said capacitor being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of a first switch;

a direct current (DC) voltage source, one terminal of said DC voltage source being connected to an inductive element, the other terminal of said DC voltage source being connected to said common electrical terminal of the system;

said inductive element with one terminal connected said DC voltage source, the other terminal of said inductive element, referred to herein as the third node, being connected to said first switch, said inductive element being used to store energy and to act as a current source for said DC motor, said inductive element being external to said DC motor, and not part of the said DC motor main magnetic circuit, said inductive element being capable of operating in a buck converter at the power level required to operate said DC motor and at the frequency of commutation of said first switch;

said first switch being connected to said inductive element in the third node, the other terminal of said first switch, not connected to the third node being connected to said common electrical terminal of the system through an electrical path with low impedance, including low impedance to DC current, said first switch for connecting and disconnecting the third node to said common electrical terminal of the system, said first switch being a controlled switch capable of being turned off and on by control signals from a control system, said control system operating based on an error signal and a value of a desired operating current for said DC motor set externally to the system, said control system for turning said first switch off and on to minimise said error signal and to keep the operating current of said DC motor at said desired value, said first switch being a single pole switch;

a second switch connected between said second and said third node, said second switch being controlled so that a current circulating through said inductive element circulates through said second switch if the first switch is turned off and disconnects the third node from said common electrical terminal of the system, said second switch being a single pole switch;

a current sensor for measuring a current through said DC motor, the output of said current sensor connected to said control system of said first switch to generate said error signal for the operation of said control system, controlling the operation of said first switch; and

means for controlling operation of said second switch dependent upon the state of the first switch.

Claim 117 (new): The system according to claim 116, wherein said first switch is an electronic switch, and said second switch is a diode connected with appropriate polarity so that current circulating through said inductive element circulates through said diode and if said first switch is open, disconnecting said inductive element.

Claim 118 (new) The system according to claim 116, wherein said inductive element is an inductor, or a winding of a transformer.

Claim 119 (new): The system according to claim 116, wherein a current through the inductive element is controlled independently from a current through the motor, the balance of electrical charge being accumulated or taken from the capacitor in parallel with the motor.

Claim 120 (new): The system according to claim 116, wherein a current through the inductive element is modulated as a full wave rectified sinusoid synchronous with the AC mains voltage so that the power factor of the system, as a load to the AC main is improved.

Claim 121 (new): The system according to claim 116, wherein said first switch and said direct current (DC) voltage source are implemented by an electronic system that connects said inductive element either to a given voltage or to a high impedance for a period of time determined by said control system controlling said first switch, said high impedance being measured with respect to said common electrical terminal of said system, said given voltage being set externally to said system, said electronic system being connected to said common electrical terminal of the system, said electronic system being controlled by said control system controlling said first switch.

Claim 122 (new) The system according to claim 116, wherein said inductive element is an inductor and said second switch is connected to a terminal of said inductor that is not connected to said third node or to said direct current (DC) voltage source.

Claim 123 (new) The system according to claim 119, further comprising an electronically driven motor, including a brushless motor, said motor is braked electronically so that a current produced during the braking process further charges said capacitor in parallel with said motor.